

Status of Research Planning in ESA

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Activities over the past year:

Quick-win projects – 3 countries

Short title	Lead Institute
Value chain analysis of grain legumes in ESA	IITA
Improved post-harvest technologies	CIMMYT
Scaling up of evergreen agriculture	ICRAF
Catalogue of tested crop, soil and water management options	TSBF/CIAT
Mycotoxins in maize and cassava	IITA
Identifying efficient seed systems, practices, models	CIAT
Seed multiplication	ICRISAT
Intensification of maize-based farming systems in Malawi	CIMMYT
Weed management in rice-based systems	Africa Rice
Enhancing vegetable value chains	AVRDC

ESA field activities -Malawi

Researchers have engaged stakeholders in the two target districts of Dedza and Ntcheu

- Conducted field trips to the districts/extension planning areas (EPAs)
- held 'project launch meetings' in the districts during August

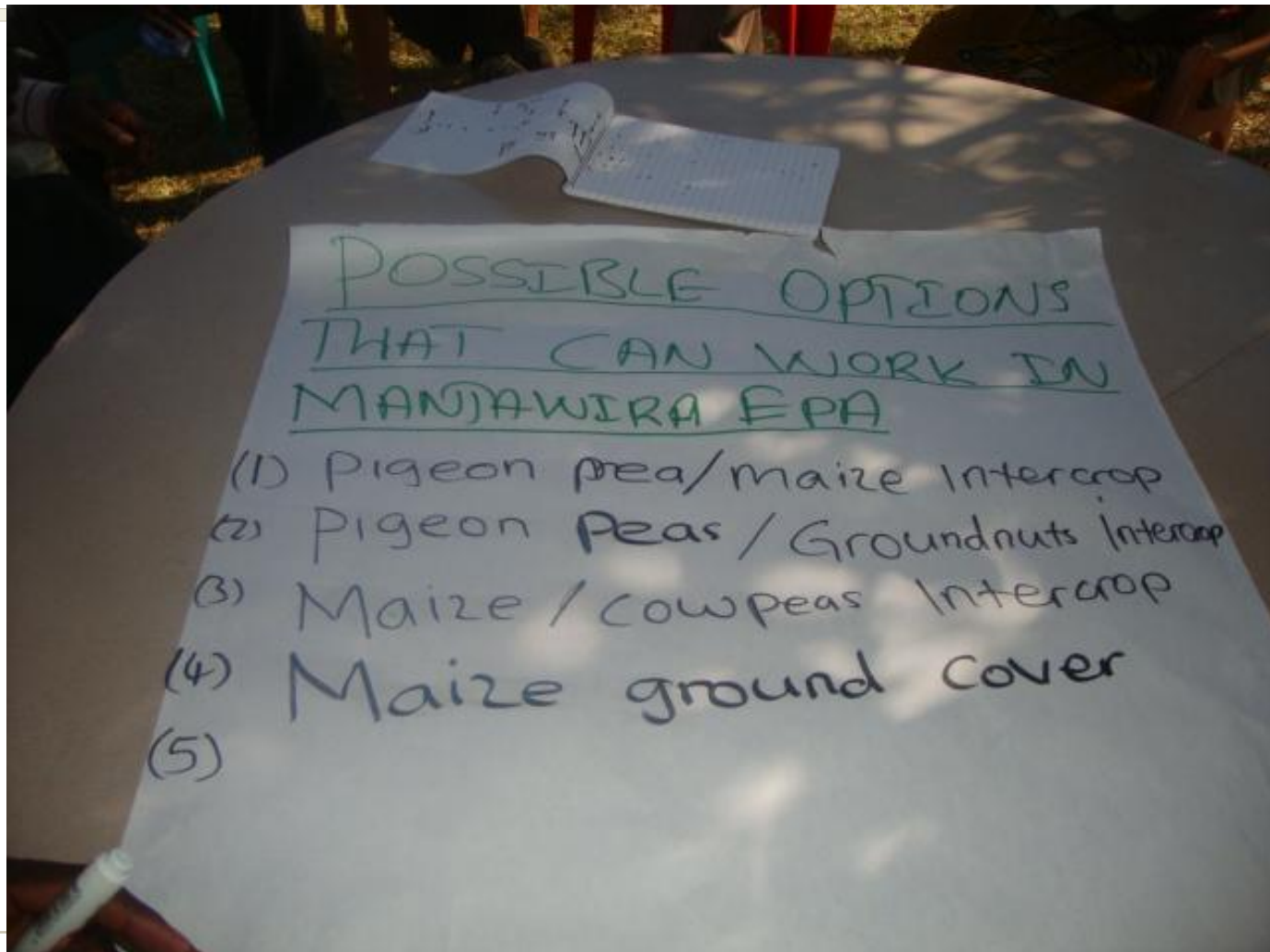
Africa RISING Workshop in Dedza District, August 2012



Participants characterised the study sites



...and proposed potential trial technologies



Informed by past work, legumes were considered as the foundation for sustainable intensification

Annuals for food and sale:

**Bean, peanut,
soybean**



Agroforestry for
soil fertility and fuelwood:
Mucuna, Gliricidia, Tephrosia



Doubled up legumes

Intercropping of two legumes on the same piece of land can increase soil fertility
Up to 2 t ha⁻¹ biomass from groundnut, and 1.8 t ha⁻¹ leafy biomass from pigeon pea



Malawi sites have adopted mother and baby adaptive experimentation with farmers, involving legume technologies

A: Mother trials

Sole maize

- Unfertilized maize – *for establishing base yields depending soil resource*
- Maize + mineral fertilizers NPKS – *for establishing water limited yield potential*
- Maize + manure/compost + NPKS – *for establishing water limited yield potential*

Sole grain legumes (these could receive P, no more than 10 kg ha⁻¹)

- Sole groundnut (*variety trials*)
- Sole cowpea or inoculated soybean/promiscuous varieties (*for dry or wet agro-ecologies*)
- Doubled-up legumes: option A (pigeonpea/groundnut intercrop)
- Doubled up legumes: option B (pigeonpea/cowpea or soyabean intercrop)

A maize/grain legume intercrops

- Maize/pigeonpea intercrop
- Maize intercropped with any other grain legume prioritised by hosting farmers
- Maize relay cropped with a green manure legume - *rehabilitation strategy for degraded soils*

B: Baby trials (adaptive trials)

- Action group farmers will collectively participate during establishment of the ‘mother trials’, and subsequently choose a few treatments from the ‘mother’ trials that will constitute the baby trials.
- There will be several ‘baby’ trial sites per village to capture biophysical heterogeneity as well as farmer socio-economic circumstances

Problem ID: Tanzania

Action districts identified; reconnaissance surveys conducted:

Maize-based FS: Kongwa, Kiteto and Babati,

Rice/vegetable-based FS: Mvomero

Babati: Pigeon Pea sole (background); intercrop with maize (fore)



Babati...crop diversification, including agroforestry



Kongwa/Kiteto: Degraded, dry...



...and still degrading!



**Livestock Integration:
manure management;
livestock/crop conflicts**



Kilombero North: Pests, diseases...



Okra



Rice

Agronomy: crop arrangements and residue management



Uncontrolled irrigation: Environmental and health consequences



...post-harvest handling, value addition, and



...recycling of residues/nutrients

(dis)organized marketing



Potential Interventions in Tanzania Maize-Livestock-based systems

- **Characterisation/diagnosis** of the most limiting nutrient and biophysical elements to crop yields
- **Farm-level Nutrient improvement studies**, combined with tillage treatments similar to the Malawi treatments (Mother-baby trials)
- **Landscape-level rehabilitation & conservation:** Practice of physical soil and water conservation measures e.g. physical and vegetative barrier effects on soil water relations and crop yields, drought tolerant shrubs...
- **Conservation Agriculture**, including cover crops for suitable soils
- **Pigeonpea Value Chain** as the driver for intensification

Potential Interventions in Tanzania Maize-Livestock-based systems

Rice-vegetable-based systems

- Rice-vegetable rotation (soil moisture measures)
- Irrigation for high value vegetable crops: WUE and minimising salinization

Research Planning workshop 1-5

October, Arusha, Tz.

- Progress – quick win projects
- Consolidation – Problem ID & study hypotheses
- Prioritise – research entry points & methods
- ID of research sites
- Formation of research teams
- Agree M&E indicators
- Presentation of plan to stakeholders

Engaging partners - Malawi

- INVC – integrated nutrient value chains
- Malawi government extension system
- University of Malawi
- Concern Universal and other NGOs
- NASFARM
- SFHC- Ekwendeni Soil Food and Healthy communities
- N2Africa

Engaging partners Tanzania

- NAFKA Staples Value Chain Activity: on-site collaboration
- iAGRI: Innovative Agricultural Research Initiative – Capacity building
- CABI: Africa Soil Health Consortium Project – Outreach
- AIFSC: Australian International Food Security Centre – research collaboration
- Farmers associations